

We claim:-

1. A process for preparing a polyamide by reacting a mixture
5 which comprises a monomer which has a nitrile group and has
at least one other functional group capable of forming a
carboxamide group, and comprises water, in the presence of
titanium dioxide as catalyst, which comprises using titanium
10 dioxide whose BET surface area, determined to the German
standard DIN 66 131 volumetrically by the multipoint method,
is in the range from 5 to 35 m²/g.
2. A process as claimed in claim 1, where the titanium dioxide
has a BET surface area in the range from 15 to 35 m²/g.
- 15 3. A process as claimed in claim 1 or 2, where the monomer has a
nitrile group and, as at least one other functional group
capable of forming a carboxamide group, has at least one
group selected from the group consisting of nitrile group,
20 carboxamide group, carboxylic acid group, ester group, and
amino group.
4. A process as claimed in claim 1 or 2, where the monomer has
been selected from the group consisting of dinitrile,
25 nitrilocarboxamide, nitrilocarboxylic acid, nitrilocarboxylic
ester, aminonitrile, and mixtures of these.
5. A process as claimed in claim 1 or 2, where the monomer is an
aliphatic compound selected from the group consisting of
30 alpha,omega-dinitrile, alpha,omega-nitrilocarboxamide, alpha,
omega-nitrilocarboxylic acid, alpha,omega-nitrilocarboxylic
ester, alpha,omega-aminonitrile, and mixtures of these.
6. A process as claimed in claim 1 or 2, where the monomer has
35 been selected from the group consisting of adiponitrile,
5-cyanovaleramide, 5-cyanovaleric acid, C₁-C₄-alkyl
cyanovalerate, 6-aminocapronitrile, and mixtures of these.
7. A process as claimed in claim 1 or 2, where the monomer has
40 been selected from the group consisting of adiponitrile,
5-cyanovaleramide, 5-cyanovaleric acid, 6-aminocapronitrile,
and mixtures of these.

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8. A process as claimed in any of claims 3 to 7, where the monomer has been selected from the group consisting of dinitrile, nitrilocarboxamide, nitrilocarboxylic acid, nitrilocarboxylic ester, and mixtures of these and is used together with a diamine, the molar ratio of the monomer mentioned to the diamine mentioned being in the range from 0.9:1 to 1:0.9.
9. A process as claimed in claim 8, where the diamine used comprises a compound selected from the group consisting of 1,2-diaminoethane, 1,3-diaminopropane, 1,4-diaminobutane, 1,5-diaminopentane, 2-methyl-1,5-diaminopentane, 1,6-diaminohexane, 1,7-diaminoheptane, 1,8-diaminooctane, 1,9-diaminononane, 1,10-diaminodecane, and mixtures of these.

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